

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Currently Amended) An improved phosphor film for a thick film dielectric electroluminescent display, said phosphor film selected from the group consisting of [[:]]

(a) a rare earth activated barium thioaluminate;

~~(b) a rare earth activated fine grained zinc sulfide;~~

~~(c) a transition metal activated zinc sulfide;~~

~~(d)~~ (b) a rare earth or transition metal activated zinc selenide; and

(e) (c) a rare earth or transition metal activated zinc sulfo-selenide,

[[:-]] wherein said phosphor film of (a), (b) ~~(d)~~ and (c) ~~(e)~~ is provided with an aluminum nitride barrier layer on a top and/or bottom side of the phosphor film and wherein said phosphor film of ~~(c)~~ is provided with an aluminum nitride barrier layer on the top side of said phosphor film, said aluminum nitride barrier layer improving the stability of the interface between the phosphor film and the display.

2. (Previously Presented) The phosphor film of claim 1, wherein said barium thioaluminate phosphor has the formula $AB_xC_y:RE$ wherein;

A is selected from one or more of the group consisting of Mg, Ca, Sr and Ba;

B is selected from one or more of the group consisting of Al, Ga and In;

C is selected from one or more of the group consisting of S and Se; and

RE is a rare earth activator species.

3. (Previously Presented) The phosphor film of claim 2, wherein C may also include oxygen at a relative atomic concentration that is less than 0.2 of the combined S and Se concentrations.

4. (Previously Presented) The phosphor film of claim 2, wherein RE is

selected from the group consisting of Eu and Ce.

5. (Currently Amended) The phosphor film of claim 1, wherein said aluminum nitride barrier layer is provided on top of said phosphor of (a) to (c) ~~(e)~~.
6. (Currently Amended) The phosphor film of claim 1, wherein said aluminum nitride barrier layer is provided on the bottom of said phosphor of (a), (b), ~~(d)~~ and (c) ~~(e)~~.
7. (Currently Amended) The phosphor of claim 1, wherein said aluminum nitride barrier layer is provided on the top and bottom of said phosphor of (a) to (c) ~~(e)~~.
8. (Previously Presented) The phosphor of claim 1, wherein said aluminum nitride barrier layer is about 30nm to about 50nm thick.
9. (Previously Presented) The phosphor of claim 8, wherein said aluminum nitride barrier layer is deposited by sputtering.
10. (Currently Amended) The phosphor of claim 9, wherein said sputtering is conducted in a sputtering atmosphere of gases at a pressure of about 0.65Pa to 3.5Pa in having a nitrogen to argon ratio of about 0:50 to 20:50 and a power density of about 2 to 6 watts per square centimeter.
11. (Previously Presented) The phosphor of claim 10, wherein oxygen is added to said sputtering atmosphere.
12. (Previously Presented) The phosphor of claim 8, wherein said aluminum nitride barrier layer is deposited by atomic layer chemical vapour deposition.
13. (Previously Presented) The phosphor of claim 8, wherein said aluminum nitride barrier layer has a optical index of refraction of up to about 2.0.

Claims 14 – 16 (Canceled)

17. (Previously Presented) The phosphor of claim 1, wherein said zinc sulfo-selenide is represented by the formula $\text{ZnS}_x\text{Se}_{1-x}:\text{A}$ where $0 < x < 1$ and A is an activating element.

18. (Previously Presented) The phosphor of claim 1, wherein said zinc selenide phosphor material is represented by $\text{ZnSe}:\text{A}$ where A is an activating element.

19. (Currently amended) The phosphor of claim ~~[[1]]~~ 32, wherein said transition metal activated zinc sulfide is represented by the formula $\text{ZnS}:\text{A}$ where A is selected from manganese and terbium.

20. (Currently amended) A phosphor laminate for use in a thick film dielectric electroluminescent display, said phosphor laminate comprising;

~~[[-]]~~ a phosphor thin film layer selected from the group consisting of

- (a) a rare earth activated barium thioaluminate;
- ~~(b) a rare earth activated fine grained zinc sulfide;~~
- ~~(c) a transition metal activated zinc sulfide;~~
- ~~(d) (b)~~ a rare earth or transition metal activated zinc selenide; and
- ~~(e) (c)~~ a rare earth or transition metal activated zinc sulfo-selenide,

~~[[-]]~~ an aluminum nitride layer provided directly adjacent a top and/or bottom side of the phosphor layer of (a), (b) and (c) ~~(d) and (e) and wherein said aluminum nitride layer is provided directly adjacent a top side of said phosphor layer of (e).~~

21. (Previously Presented) The laminate of claim 20, wherein said aluminum nitride barrier layer has a thickness of about 30nm to about 50nm.

22. (Previously Presented) The laminate of claim 21, wherein said phosphor thin film layer is (a) and said aluminum nitride barrier layer is provided on the top side of said phosphor thin film layer.

23. (Currently amended) A thick film dielectric electroluminescent device constructed on a glass or glass ceramic substrate and comprising a phosphor selected from the group consisting of [[:]]

- (a) a rare earth activated barium thioaluminate;
- ~~(b) a rare earth activated fine grained zinc sulfide;~~
- ~~(c) a transition metal activated zinc sulfide;~~
- ~~(d)~~ (b) a rare earth or transition metal activated zinc selenide; and
- ~~(e)~~ (c) a rare earth or transition metal activated zinc sulfo-selenide,

[-] wherein said phosphor film of (a), (b) and (c) ~~(d) and (e)~~ is provided with an aluminum nitride barrier layer on a top and/or bottom side of the phosphor film and wherein said phosphor film of (c) is provided with an aluminum nitride barrier layer on the top side of said phosphor film, said aluminum nitride barrier layer improving the stability of the interface between the phosphor film and the device.

24. (Previously Presented) The device of claim 23, wherein said aluminum nitride barrier layer has a thickness of about 30nm to about 50nm.

25. (Currently amended) A method for making a stabilized phosphor laminate for use in a thick film dielectric electroluminescent device, said method comprising [[:]]

i) deposition of a phosphor selected from the group consisting of:

- (a) a rare earth activated barium thioaluminate;
- ~~(b) a rare earth activated fine grained zinc sulfide;~~
- ~~(c) a transition metal activated zinc sulfide;~~
- ~~(d)~~ (b) a rare earth or transition metal activated zinc selenide; and
- ~~(e)~~ (c) a rare earth or transition metal activated zinc sulfo-selenide,

onto a glass or glass ceramic substrate incorporating a first set of address lines and a dielectric layer;

iii) ii) deposition of a layer of aluminum nitride on top of said phosphor film of (a)-(c) ~~(a)-(e)~~; and

ii) iii) annealing said phosphor film at a temperature of up to about 1100°C.

26. (Currently amended) The method of claim 25, wherein said method

further comprises deposition of a layer of aluminum nitride on the bottom of said phosphor film of (a), (b), and (c) ~~(d) and (e)~~.

27. (Previously Presented) The method of claim 26, wherein said aluminum nitride has a thickness of about 30nm to about 50nm.

28. (Previously Presented) The method of claim 27, wherein said aluminum nitride barrier layer is deposited by sputtering.

29. (Currently Amended) The method of claim 28, wherein said sputtering is conducted in a sputtering atmosphere of gases at a pressure of about 0.65Pa to 3.5Pa ~~in~~ having a nitrogen to argon ratio of about 0:50 to 20:50 and a power density of about 2 to 6 watts per square centimeter.

30. (Previously Presented) The method of claim 29, wherein oxygen is added to said sputtering atmosphere.

31. (Previously Presented) The method of claim 27, wherein said aluminum nitride barrier layer is deposited by atomic layer chemical vapour deposition.

32. (New) An improved phosphor film for a thick film dielectric electroluminescent display, said phosphor film selected from the group consisting of a transition metal activated zinc sulfide; wherein said phosphor film is provided with an aluminum nitride barrier layer on a top side of the phosphor film, said aluminum nitride barrier layer improving the stability of the interface between the phosphor film and the display; and further wherein said aluminum nitride barrier layer is about 30nm to about 50nm thick.